frequency in November lies along a line traced from Newfoundland to north of the British Isles; the storms move with an average velocity of about 21 miles per hour; and an average of 2 storms traverse the ocean from the American to the European coasts.

The storms of the current month generally followed a normal path; they developed great energy over the eastern part of the ocean, and at least two storms appeared to traverse the ocean from coast to coast.

The month opened with a storm of marked energy central north-northwest of the Azores; the pressure fell to about 29.00 (737) at the center of disturbance, and whole gales were experienced along the trans-Atlantic steamship tracks between the 15th and 40th meridians. By the 2d the disturbance had changed position slightly to the eastward, and the morning of the 3d was central northeast of the Azores, in which position a marked loss of energy was shown. On the 4th the storm was located off the coast of Portugal, after which it disappeared east of the region of observation. The abnormal course of this storm was apparently due to high pressure northeast of its position. During the 1st a storm of considerable strength (low area I) advanced eastward over the north part of the Gulf of Saint Lawrence, whence it moved to Labrador by the 2d, and passing thence over mid-ocean in high latitudes disappeared in the direction of Iceland after the 4th. On the 3d an ill-defined cyclonic area was indicated over the Caribbean Sea south of Cuba. The morning of the 4th a storm was located south of Bermuda. Moving northeastward the disturbance reached the 34th parallel by the 5th, and the morning of the 6th was central on the northeast edge of the Banks of Newfoundland, with a decided increase of energy, and strong to whole gales between the 40th and 50th meridians. Moving thence east-northeast the center occupied a position northwest of the British Isles on the 8th. The pressure continued low north and west of the British Isles until the 10th, on which date gales of hurricane force and pressure below 29.00 (737) were reported east of the 20th meridian.

During the 11th a storm of great energy passed eastward over the British Isles, and during that and the preceding date immense damage was caused to property and shipping and many lives were lost along the coasts of Great Britain. At London, England, the barometer fell to 28.50 (724). The storm was also very severe along the French and Spanish coasts. On the 6th a cyclonic area which had apparently advanced from the southward was central about midway between Bermuda and the North Carolina coast, whence it moved east-northeast and the morning of the 9th was located east of the Banks of Newfoundland. It is not improbable that this storm passed rapidly north of east and united with the storm which visited the British Isles with such destructive violence during the 10th and 11th. On the 12th a storm-center appeared west-southwest of Ireland, where pressure falling to about 28.40 (721), and gales reaching force 10 to 12 were reported. This storm remained almost stationary until the 13th, without an apparent loss of energy, and on the 14th was central south of Ireland, after which it disappeared beyond the region of observation. On the 13th a storm (low areas V and VI) was central over the Gulf of Saint Lawrence. The morning of the 14th this storm was central north of the Grand Banks, whence it advanced to mid-ocean by the 15th, and disappeared north of the British Isles by the 17th. On the 17th a storm which had apparently developed over mid-ocean in the wake of the storm last referred to appeared near the 30th meridian, whence it moved northeastward with evidence of marked energy and disappeared beyond the region of observation after the 19th. On the 18th a storm (low area VII) moved northeastward over Labrador.

On the 21st a cyclonic area was indicated north of the Windward Islands, whence it moved northward without evidence of marked energy and apparently united with low area X over the Gulf of Saint Lawrence after the 24th. From the 22d to the close of the month the pressure continued low over the British Isles, and on the 28th the readings were 29.10 (739) in Ireland. During the 25th a storm (low area X) passed northeastward over Labrador, and thence north of the region of observation. On the 27th a storm, which was probably a continuation of low area X, was central over mid-ocean in high latitudes, and by the 28th this storm-center had advanced near the Irish coast, after which it apparently moved northward. During the 27th a storm (low area XI) moved northeastward over the Gulf of Saint Lawrence, and the morning of the 28th was central north of the Banks of Newfoundland, whence it passed east-northeast to mid-ocean, where the pressure continued low until the close of the month. During the 28th a storm (low area XII) moved over the south part of the Gulf of Saint Lawrence, and on the 29th was central north of the Grand Banks, whence it advanced to mid-ocean by the close of the month. Reports of the 29th and 30th indicated the presence off the North Carolina and Virginia coasts of a storm of limited energy.

OCEAN ICE.

The only Arctic reported for November, 1891, was an iceberg in N. 51° 53′, W. 55° 35′, on the 8th. In November, 1890, a small piece of ice was observed in N. 46° 35′, W. 47° 51′. In 1882, 1883, 1887, and 1888 no Arctic ice was reported near Newfoundland and the Grand Banks. In 1884 several icebergs were seen in N. 45° 56′, W. 52° 38′. In 1885 the only iceberg reported was observed in N. 48° 00′, W. 51° 10′. In 1886 one iceberg was reported in N. 45° 20′, W. 45° 26′.

OCEAN FOG.

The limits of fog belts west of the 40th meridian, as reported by shipmasters, are shown on Chart I by dotted shading. Near the Banks of Newfoundland fog was reported on 8 dates; between the 55th and 65th meridians on 3 dates; and west of the 65th meridian on 2 dates. Compared with the corresponding month of the last 4 years the dates of occurrence of fog east of the 55th meridian number 3 less than the average; between the 55th and 65th meridians the number of days of fog corresponded with the average; and west of the 65th meridian the dates of fog numbered 4 less than the average. The fog reported by shipmasters and noted at stations of the Weather Bureau along the New England and New York coasts generally attended the advance or passage of general storms.

TEMPERATURE OF THE AIR (expressed in degrees, Fahrenheit).

Many of the voluntary stations do not have standard thermometers or shelters.

The distribution of mean temperature over the United States and Canada for November, 1891, is exhibited on Chart II by dotted isotherms. In the table of miscellaneous meteorological data the monthly mean temperature and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for mean temperature and departure from the normal show, respectively, the average for the several districts. The normal for any district may be found by adding the departure to the current mean when the departure is below the normal and subtracting when above. The monthly mean temperature for regular stations of the Weather Bureau represents the mean of the maximum and minimum temperatures.

The mean temperature was highest over extreme southern Florida, where it rose above 70; a monthly mean of 72 was

reported at Seven Palms, in the north-central part of San Diego county, Cal. Over the Florida Peninsula, along the immediate Gulf coast, in Texas south of the 30th parallel, in the lower Colorado and Gila valleys, and at stations on the immediate coast of southern California the mean values were 60, and above. In Manitoba and northern Assiniboia the mean temperature was below 15; it was below 30 over the north part of the upper lake region, and in Wisconsin, except along the shore of Lake Michigan; and was also below 30 north of a line traced from central Iowa to extreme northwestern Montana, and from southwestern Montana over the mountain region of Colorado.

DEPARTURES FROM NORMAL TEMPERATURE.

The mean temperature was above the normal west of the Rocky Mountains, and from eastern Ontario over northern New England and the Canadian Maritime Provinces. The excess was most marked over the central and western parts of the plateau region between the 35th and 45th parallels and in central Oregon, where it exceeded 4, and the mean was more than 2 in excess over the entire country west of the Rocky Mountains, and in the lower Saint Lawrence valley. East of the Rocky Mountains, save in the extreme northeast, the month was cooler than usual. The most marked deficiency occurred from the middle Missouri to the upper Mississippi valleys, where it exceeded 6, and the deficiency was more than 2 from eastern Montana and Manitoba southeastward to the Atlantic coast between the 27th and 40th parallels.

DEVIATIONS FROM NORMAL TEMPERATURE.

The following table shows for certain stations, as reported by voluntary observers, (1) the normal temperature for November for a series of years; (2) the length of record during which the observations have been taken, and from which the normal has been computed; (3) the mean temperature for November, 1891; (4) the departure of the current month from the normal; (5) and the extreme monthly mean for November during the period of observation and the years of occurrence:

State and station.	County.	(1) Normal for the month of Nov.	(2) Length of record.	(3) Mean for Nov., 1891.	(4) Departure from normal.	(5) Extreme monthly mean for November. Highest.	Year.	Lowest.	Year.
Arkansas.		°	Years	°	°	°		°	
Lead Hill	Boone	47.3	10	.....	.....	51.2	1890	44.1	1889
California.									
Sacramento	Sacramento	52.4	38	46.9	— 5.5	57.5	1873	44.9	1890
Connecticut.									
Middletown	Middlesex	39.4	25	39.5	+ 0.1	45.1	1859	31.6	1873
Florida.									
Merritts Island	Brevard	68.0	9	68.0	0.0	73.3	1883	60.0	1885
Georgia.									
Forsyth	Monroe	56.5	16	55.9	— 0.6	61.7	1874,'90	51.0	1880
Illinois.									
Peoria	Peoria	39.7	35	37.7	— 2.0	44.6	1867	30.2	1880
Riley	McHenry	33.7	35	30.1	— 3.6	40.3	1865	24.1	1880
Indiana.									
Vevay	Switzerland	43.7	26	43.2	— 0.5	48.7	1879	33.0	1869
Iowa.									
Cresco	Howard	28.8	19	26.5	— 2.3	34.7	1878	19.2	1880
Monticello	Jones	33.6	36	29.9	— 3.7	41.5	1859	24.4	1863
Logan	Harrison	36.2	17	34.7	— 1.5	41.9	1890	27.5	1880
Kansas.									
Lawrence	Douglas	40.1	23	39.5	— 0.6	45.8	1878	31.6	1880
Wellington	Sumner	41.4	12	.....	.....	45.5	1879	29.0	1880
Louisiana.									
Grand Coteau	Saint Landry	59.6	9	58.8	— 0.8	64.0	1883	56.2	1889
Maine.									
Orono	Penobscot	33.8	21	37.0	+ 3.2	38.6	1889	27.1	1875
Maryland.									
Cumberland	Allegany	40.0	32	40.9	+ 0.9	44.7	1883	32.7	1869
Massachusetts.									
Amherst	Hampshire	38.3	55	38.4	+ 0.1	44.1	1849	29.7	1873
Newburyport	Essex	39.7	13	39.7	0.0	42.1	1889	36.5	1880
Somerset	Bristol	40.7	19	42.3	+ 1.6	45.2	1889	33.0	1873
Michigan.									
Kalamazoo	Kalamazoo	37.3	15	35.7	— 1.6	43.4	1890	27.0	1880
Thornville	Lapeer	38.0	14	36.6	— 1.4	45.4	1877	28.4	1880
Minnesota.									
Minneapolis	Hennepin	29.2	26	25.5	— 3.7	36.3	1870	17.4	1880
Montana.									
Fort Custer	Custer	32.7	12	35.4	+ 2.7	39.9	1890	24.5	1880
New Hampshire.									
Hanover	Grafton	34.1	54	32.9	— 1.2	41.6	1849	24.8	1873
New Jersey.									
Moorestown	Burlington	42.0	28	42.0	0.0	45.3	1888	36.2	1873
South Orange	Essex	41.2	21	40.4	— 0.8	44.5	1885	32.6	1871

Deviations from normal temperature—Continued.

State and station.	County.	(1) Normal for the month of Nov.	(2) Length of record.	(3) Mean for Nov., 1891.	(4) Departure from normal.	(5) Extreme monthly mean for November. Highest.	Year.	Lowest.	Year.
New York.		°	Years	°	°	°		°	
Cooperstown	Otsego	34.9	37	34.9	0.0	38.5	1876,'77	26.8	1873
Palermo	Oswego	35.3	37	36.5	+ 1.2	41.9	1859	26.8	1873
North Carolina.									
Lenoir	Caldwell	45.3	19	42.7	— 2.6	49.8	1890	39.9	1872
Ohio.									
N'th Lewisburgh	Champaign	39.4	59	39.4	0.0	49.0	1849	29.0	1874, '80
Wauseon	Fulton	36.1	21	35.4	— 0.7	40.8	1890	27.9	1880
Oregon.									
Albany	Linn	43.9	12	48.0	+ 4.1	48.0	1891	40.7	1880
Eola	Polk	43.1	21	47.2	+ 4.1	49.6	1889	37.6	1872
Pennsylvania.									
Dyberry	Wayne	34.7	23	34.3	— 0.4	38.3	1883	25.7	1873
Grampian Hills	Clearfield	35.3	27	35.2	— 0.1	39.2	1890	28.3	1869
Wellsborough	Tioga	38.6	12	34.6	— 4.0	41.4	1885	34.6	1891
South Carolina.									
Statesburgh	Sumter	54.1	10	51.2	— 2.9	58.2	1890	51.2	1891
Tennessee.									
Austin	Wilson	47.9	21	47.8	— 0.1	54.5	1879	40.2	1872
Texas.									
New Ulm	Austin	59.0	19	59.3	+ 0.3	65.6	1879	49.6	1880
Vermont.									
Strafford	Orange	33.4	18	34.4	+ 1.0	37.9	1886	23.4	1873
Virginia.									
Birdsnest	Northampt'n	49.8	23	47.7	— 2.1	55.6	1881	43.0	1869
Washington.									
Fort Townsend	Jefferson	43.0	16	45.4	+ 2.4	47.3	1884	39.2	1880
Wisconsin.									
Madison	Dane	33.3	22	30.0	— 3.3	45.0	1864	23.4	1861

TEMPERATURE, JANUARY TO NOVEMBER.

For the period January to November, 1891, inclusive, the temperature averaged about normal in the middle Atlantic states, the Ohio Valley and Tennessee, the upper Mississippi valley, over the southern plateau region, and on the middle Pacific coast. Over the northern plateau region the excess averaged from 1 to 2, in the upper lake region and the extreme northwest about 1, and in New England, the lower lake region, and on the north and south Pacific coasts 0.5 to 1. The greatest deficiency for this period was noted at Key West, Fla., in the west Gulf states, and on the middle-eastern slope of the Rocky Mountains, where it was 1 to 2, and the deficiency was 0.5 to 1 in the south Atlantic and east Gulf states, the Rio Grande and Missouri valleys, on the northeast and southeast slopes of the Rocky Mountains, and over the middle plateau region.

YEARS OF HIGHEST MEAN TEMPERATURE FOR NOVEMBER.

At stations along the north and middle Pacific coasts and in the plateau region the mean temperature for the current month was the highest ever reported for November. On the north Pacific coast the mean was 0.2 to 1.8 higher, over the interior of California it was 0.4 to 2.0 higher, and over the northern and middle plateau regions it was 0.3 to 3.2 higher than previously noted for November. The highest mean temperature for November occurred generally in an area extending from the extreme northwest over the central valleys to the south Atlantic coast, along the immediate middle and south Pacific coasts, and in the lower Colorado valley in 1890; at stations in the middle and northern plateau regions in 1885; over the lower lake region and southern New York in 1883; at stations along the immediate Atlantic coast from southern New England to the Carolinas in 1881; in the west Gulf states in 1879; and in the upper lake region in 1878.

YEARS OF LOWEST MEAN TEMPERATURE FOR NOVEMBER.

At Wellsborough, Pa., Statesburgh, S. C., Auburn, Ala., and Huron, S. Dak., the mean temperature for the current month was reported the lowest ever noted for November. Except in Pennsylvania, New York, and New England, and in Washington and central and southern California, the coldest November in the last 21 years was noted generally over the United States in 1880. The lowest mean temperature for November occurred on the north and south Pacific coasts in 1886;

in central California in 1882; and in Pennsylvania, New York, and New England in 1873.

MAXIMUM TEMPERATURE.

At stations in the Rocky Mountain and plateau regions, on the Pacific coast, and in the Dakotas, Kansas, and southern Texas the maximum temperature was the highest ever reported for November. The maximum temperature rose to 100 in the Colorado Desert, Cal.; it was above 90 in the lower Colorado, Gila, and lower Rio Grande valleys, and at stations in the Gulf States; and reached 80 along the immediate south Atlantic coast, over the west Gulf states, Kansas, Oklahoma and Indian Territories, Texas, and the greater part of Arizona and southern California. The maximum temperature was lowest over the west Lake Superior region, where it was below 50, and the maximum readings were below 60 over northern New England, the upper lake region, and on the extreme north Pacific coast.

MINIMUM TEMPERATURE.

At Hatteras, N. C., New Orleans, La., Vicksburg, Miss., Des Moines, Iowa, and Rapid City, S. Dak., the minimum temperature was the lowest ever reported for November, and at Block Island, R. I., and Springfield, Ill., it was the same as the lowest minimum previously reported for the month. The minimum temperature fell below —20 in the Red River of the North Valley; it was below —10 in Minnesota and the Dakotas, and from eastern Montana over Wyoming to central Colorado; and was below zero in northern New England, and north of a line traced from eastern upper Michigan southwestward to northern Missouri, thence westward to central Colorado, thence southward over the mountain region to northwestern New Mexico, and thence north-northwest to extreme western Montana. The highest minimum temperature was reported over extreme southern Florida, where it was above 60, and it was above 40 over the south and east parts of the Florida Peninsula, in extreme southern Louisiana, and along the immediate Pacific coast south of the 40th parallel.

LIMITS OF FREEZING WEATHER.

The southern limit of freezing weather is shown on Chart V by a line traced southwestward over the northern part of the Florida Peninsula, and a second line traced inside the west Gulf coast line, and over southeastern Texas. The western limit of freezing weather is shown by a line traced from western Arizona over extreme southern Nevada, and thence along the western slopes of the Sierra Nevada and Cascade ranges of mountains to the extreme north Pacific coast.

RANGES OF TEMPERATURE.

The greatest daily ranges of temperature are shown in the table of miscellaneous meteorological data. The greatest monthly range of temperature, 93, was noted at Valentine, Nebr.; the monthly ranges exceeded 80 in the Red River of the North Valley, and thence over South Dakota, northern Nebraska, Wyoming, and southern Montana. From this region the monthly ranges decreased eastward to less than 40 in north lower Michigan, thence increased to more than 70 over northern Vermont, and thence decreased to less than 40 on the extreme southeast New England coast and at Hatteras, N. C. The monthly ranges decreased to 20 at Key West, Fla., to less than 40 on the extreme southern Louisiana coast, to less than 40 on the extreme south California coast, to 30 on the middle California coast, and to less than 30 on the southwest Washington coast.

PERIODS OF HIGH TEMPERATURE.

The month opened with the highest temperature of the month in the south Atlantic states.

On the 3d a warm wave appeared on the north Pacific coast, with maximum temperature 1 to 2 higher than previously reported for November at Tatoosh Island and Neah Bay, Wash., and Roseburgh, Oregon. On the 4th the warm wave extended over the northern and southern plateau regions, the middle Pacific coast, and the west part of the middle plateau region, with maximum temperature 7 to 9 higher over the northern plateau region, 2 higher at Winnemucca, Nev., and 1 higher at Yuma, Ariz., than previously reported for November. Extending eastward the warm wave was attended by the highest temperature on record for November at Salt Lake City, Utah, Montrose, Colo., Cheyenne, Wyo., Rapid City, S. Dak., and Fort Buford, N. Dak., on the 5th; at Concordia and Leavenworth, Kans., on the 6th; at San Antonio, Tex., on the 7th; and at Buffalo, N. Y., on the 9th. The warm wave reached the Atlantic coast on the 10th, and the temperature continued high in the middle Atlantic and New England states until after the 12th.

On the 9th and 10th the temperature was high on the middle and south Pacific coasts, the maximum at San Francisco, Cal., on the 10th, 78, being as high as previously noted for November. On the 15th a warm wave appeared over the upper Mississippi valley, and the highest temperature of the month was reported at a number of stations in that region; extending eastward to the Atlantic coast by the 17th, this warm wave was attended by the highest temperature of the month at points in New England, eastern New York, and Florida. The highest temperature of the month was noted at Brownsville, Tex., on the 28th, and at Titusville, Fla., on the 29th.

PERIODS OF LOW TEMPERATURE.

From the 14th to 16th a cool wave overspread the Pacific coast and the plateau region, with temperature below 40, save along the immediate middle and south California coasts; it reached the Rocky Mountains by the 17th, when the minimum temperature fell to —3 at Rapid City, S. Dak., 1 lower than previously noted for November at that station; and advanced to the Atlantic coast by the 18th, with temperature 12 to 16 below freezing in Pennsylvania and Maryland, 14 below freezing in east Tennessee and northern Georgia, and 2 below freezing at Savannah, Ga. On the 28th a cold wave appeared over the north-central part of the country, with temperature —20 to —30 in the Red River of the North Valley. This cold wave extended over the middle and upper Mississippi valleys and the Lake region during the 29th. On this date the minimum temperature at Des Moines, Iowa, —10, was 1 lower than previously reported for November, and the minimum at Springfield, Ill., 4, was the same as the lowest reported in November of preceding years. By the 30th the cold wave had extended over the Atlantic coast from the Canadian Maritime Provinces to Key West, Fla. On this date the minimum temperature fell to 22 at Vicksburg, Miss., and to 30 at New Orleans, La., and was 1 and 2, respectively, lower than previously reported at those stations for November; it was 31, the lowest by 1, at Hatteras, N. C., and 19, as low as ever reported in November, at Block Island, R. I.; the minimum temperature at New Brunswick, N. J., 10, was the lowest November minimum in 34 years, and the line of freezing weather extended over the interior of the Florida Peninsula to the 29th parallel, south of stations on the east Gulf coast, and nearly to the immediate west Gulf coast.

FROST.

The first heavy frost of the season was reported as follows: 7th, Southport, N. C. 9th, Grand Central Mill, Ariz.; El Paso, Tex. 10th, Guthrie, Okla. T.; Gallinas, Graham, Childress, and New Braunfels, Tex. 12th, Abilene and New Ulm, Tex.; Dallas, Ark. 14th, Port Angeles, Wash.; Georgetown and Upper Lake, Cal. 15th, Hydesville, Lodi, Sacramento, and San Ardo, Cal. 16th, Florence and Signal, Ariz.; Turlock, Cal.; Portland and Roseburgh, Oregon. 17th, Palestine, Tex. 18th, Mobile, Ala.; Jacksonville, Tallahassee, and Pensacola, Fla.; Savannah and Quitman, Ga.; San Antonio, Brady, and Hallettsville, Tex. 30th, New Orleans, La.; Charleston, S. C.

On the 7th heavy frost damaged vegetation about Wilmington and Southport, N. C. The heavy frost of the 12th at Dallas, Ark., killed tomato plants. On the 14th tender plants on

low ground were killed at Georgetown, Cal. Vegetation was badly injured at Sacramento, Cal., on the 15th. At Jacksonville, Fla., tender vegetation was injured by frost and ice formed on the 18th. During the week ending November 21st vegetation was slightly injured by frost in parts of Los Angeles and Orange counties, Cal.

The heavy frost of the 18th in northern Florida and along the Gulf coast was about two weeks earlier than the average date of first killing frost in those districts.

Attending the cold wave of the last 3 days of the month frost occurred on the Gulf coast, and on the 30th it was reported as far south as Pasadena, Pasco Co., Fla.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada, for November, 1891, as determined from the reports of nearly 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for regular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above.

In November the monthly precipitation is usually greatest on the northwest coast of Washington, where it exceeds 10.00; it exceeds 8.00 along the immediate Pacific coast north of the 40th parallel; it exceeds 4.00 in the Mississippi Valley south of the 36th parallel, along the Gulf coast from Galveston, Tex., to the Florida Peninsula, in an area extending from the west part of the Carolinas over the eastern half of Tennessee, along the North Carolina coast, and along the immediate Atlantic coast north of New Jersey. West of a line traced from the Red River of the North Valley to central Texas the normal precipitation for November is generally less than 1.00, except along the Pacific coast, and in the mountains of Idaho and western Montana.

In November, 1891, the monthly precipitation was greatest on the extreme north Pacific coast, where it exceeded 20.00, and a depth of 23.06 was reported at Neah Bay, Wash. The monthly amount exceeded 10.00 at stations in east-central Arkansas, central Illinois, at Central City, Ky., Cheneyville, La., Natchez, Miss., Linville, N. C., and Dyersburgh, Tenn., and was more than 8.00 along the Oregon and Washington coasts, in areas in the middle and lower Mississippi and lower Ohio valleys, and in western North Carolina. Over the greater part of southern California and thence eastward over the southern plateau region to western New Mexico there was an almost entire absence of precipitation, and in the extreme northwest and over the greater part of the country west of the 100th meridian, save on the north Pacific coast, and in the mountains of Idaho and western Montana, the monthly amount was less than 1.00.

DEPARTURES FROM NORMAL PRECIPITATION.

The monthly precipitation was in excess of the average amount for November from the central part of the Lake region southward over the Ohio and Mississippi valleys to southern Alabama and Mississippi; it was also in excess from the north Pacific coast to the Red River of the North Valley. At Neah Bay, Wash., the excess was more than 10.00; it exceeded 5.00 along the Washington coast; and exceeded 2.00 in an area extending from Georgian Bay to the eastern lower Mississippi valley. In the Atlantic coast states and Florida, from Texas westward to the south and middle Pacific coasts, and from the southeastern slope of the Rocky Mountains to western Lake Superior the monthly precipitation was deficient. The most marked deficiency, 4.06, was noted at Sydney, C. B. I., and there was a deficiency of more than 2.00 on the North Carolina coast, at points along the New England coast, in central Texas, and at San Francisco and Red Bluff, Cal.

Considered by districts the average percentage of the normal in districts where the precipitation was in excess was about as follows: north Pacific coast, 170; upper Mississippi valley, 160; extreme northwest, 155; upper lake region, 150; lower lake region, and Ohio Valley and Tennessee, 130; east Gulf states, 120. In districts where the precipitation was deficient the percentage of the normal was about as follows: south Pacific coast, 4; southern plateau region, 6; southeastern slope of the Rocky Mountains, 9; middle Pacific coast, 18; Rio Grande Valley, 27; middle plateau region, 37; middle-eastern slope of the Rocky Mountains, 40; New England, 56; middle Atlantic states, 57; Missouri Valley, 62; south Atlantic states, 67; Key West, Fla., 80; west Gulf states, 90. On the northeast slope of the Rocky Mountains, and at Spokane Falls, Wash., the monthly precipitation averaged about normal.

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for November for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for November, 1891; (4) the departure of the current month from the average; (5) and the extremes for November during the period of observation and the years of occurrence:

State and station.	County.	(1) Average for the month of Nov.	(2) Length of record.	(3) Total for Nov., 1891.	(4) Departure from average.	(5) Extremes for Nov.			
						Greatest.		Least.	
						Am't.	Year.	Am't.	Year.
Arkansas.		*Inches*	*Years*	*Inches*	*Inches.*	*Inches.*		*Inches*	
Lead Hill	Boone	4.11	10	8.85	+4.74	8.85	1891	2.50	1885
California.									
Sacramento	Sacramento	2.01	41	0.46	−1.55	9.65	1885	0.00	'50,'62
Connecticut.									
Middletown	Middlesex	3.90	31	3.00	−0.90	7.29	1877	0.75	1890
Florida.									
Merritts Island	Brevard	2.45	13	1.67	−0.78	5.67	1884	0.17	1886
Georgia.									
Forsyth	Monroe	3.44	17	3.56	+0.12	5.41	1888	0.50	1890
Illinois.									
Peoria	Peoria	2.32	35	4.08	+1.76	4.93	1879	0.31	1865
Riley	McHenry	2.30	40	3.75	+1.45	8.38	1876	0.08	1862
Indiana.									
Logansport	Cass	3.59	15	7.69	+4.10	7.69	1891	1.43	1880
Vevay	Switzerland	3.29	26	5.77	+2.48	6.34	1888	0.73	1872
Iowa.									
Cresco	Howard	1.52	20	1.01	−0.51	5.20	1879	0.18	1875
Monticello	Jones	2.39	36	2.55	+0.16	5.72	1862	0.12	1865
Logan	Harrison	1.37	21	0.60	−0.77	3.85	1871	0.00	1873
Kansas.									
Lawrence	Douglas	1.93	25	0.81	−1.12	5.15	1879	0.01	1872
Wellington	Sumner	1.23	12	.....	.....	3.14	1890	0.18	1886
Louisiana.									
Grand Coteau	St. Landry	3.10	8	4.85	+1.75	5.72	1883	1.51	1890
Maine.									
Orono	Penobscot	4.59	21	2.78	−1.81	8.76	1886	1.78	1882
Maryland.									
Cumberland	Allegany	2.27	20	2.92	+0.65	5.34	1889	0.82	1887
Massachusetts.									
Amherst	Hampshire	4.65	46	2.71	−1.94	7.48	1854	1.33	1882
Newburyport	Essex	4.38	13	2.34	−2.04	8.15	1889	0.97	1882
Somerset	Bristol	4.59	19	2.95	−1.64	9.02	1876	1.04	1890
Michigan.									
Kalamazoo	Kalamazoo	2.72	15	4.96	+2.24	5.77	1877	1.25	1882
Thornville	Lapeer	2.97	14	5.32	+3.35	5.32	1891	1.42	1882
Minnesota.									
Minneapolis	Hennepin	1.32	25	0.82	−0.50	4.13	1868	0.31	1878
Montana.									
Fort Custer	Custer	0.41	12	1.68	+1.27	1.68	1891	0.05	1887
New Hampshire.									
Hanover	Grafton	3.75	39	2.00	−1.75	6.62	1885	0.59	1882
New Jersey.									
Moorestown	Burlington	3.37	28	2.30	−1.07	7.02	1889	0.98	1890
South Orange	Essex	3.63	21	2.86	−0.77	11.37	1889	0.78	1890
New York.									
Cooperstown	Otsego	3.07	37	3.15	+0.08	5.38	1858	1.45	1876
Palermo	Oswego	3.67	37	2.88	−0.79	6.60	1866	1.01	1882
North Carolina.									
Lenoir	Caldwell	3.33	19	4.50	+1.17	7.60	1877	0.00	1890
Ohio.									
N. Lewisburgh	Champaign	3.38	16	7.20	+3.82	7.20	1891	0.85	1884
Wauseon	Fulton	3.13	19	5.02	+1.89	5.83	1881	1.46	1884